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EXAMINER	
WON, MICHAEL YOUNG	

ART UNIT	PAPER NUMBER
2155	

DATE MAILED: 07/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/045,287	ROBINS ET AL.	
	Examiner	Art Unit	
	Michael Y. Won	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-18,20-28 and 30-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-18,20-28 and 30-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed May 25, 2006.

2. Claims 1, 3, 6, 7, 11, 13, 16, 17, 21, 23, 26, 27, 31, and 32 have been amended.

3. Claims 1-8, 10-18, 20-28 and 30-35 have been examined and are pending with this action.

Claim Rejections - 35 USC § 112

4. Claims 31 and 32 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, has been withdrawn.

Claims 31 and 32 rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language, has been withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 31-32 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Bonomi et al. (US 6,396,834 B1).

As per ***claim 31***, Bonomi teaches a method of performing a virtual network connection merge, the method comprising:

assigning a relative frequency value to each network connection in a plurality of network connections being represented in a first list (see col.3, lines 38-40: "*individual connections consistent with the QoS parameters associated with each connection*"; col.10, lines 18-23: "*allocation of bandwidth proportional to the bandwidth with which each connection is setup with*" & "*features such as priorities*"; and col.11, lines 8-18: "*assuming equal priority, bandwidth is distributed proportionate to the desired bandwidth for each connection*");

assigning a credit to each ready network connection in the plurality of network connections in the first list (see col.12, lines 5-9: *each group is assigned a weight and the cells in the group are allocated an aggregate bandwidth proportional to the assigned weight*") in a round robin sequential fashion (see col.13, lines 1-4: "circular sequence'), a ready network connection being a connection ready to send a data unit (see col.11, lines 41-44: "*ready for transmission*" and col.12, lines 19-20: "*ready for transmission*");

when a ready network connection is assigned credits at least equal to its relative frequency value (see col.12, lines 5-9: *each group is assigned a weight and the cells in the group are allocated an aggregate bandwidth proportional to the assigned weight*"), removing the ready network connection from the first list (see col.10, lines 26-31 and col.11, lines 28-32);

continuing to assign a credit to each ready network connection in the plurality of network connections in the first list in a round robin sequential fashion until the first list is empty (see col.13, lines 1-21), wherein when a network connection is assigned credits at least equal to its relative frequency value (see col.12, lines 5-9: *each group is assigned a weight and the cells in the group are allocated an aggregate bandwidth proportional to the assigned weight*"), removing the ready network connection from the first list (repeating previous steps does not make invention novel);

determining a chosen data unit to be transmitted to an output channel from a ready network connection in the ready network connections (see col.9, line 62-col.10, line 1: "*scheduler 470 to determine the ports on which (cells of) each branch queue needs to be transmitted*" and col.12, lines 19-20: "*a bucket with a cell ready for transmission is selected*"), wherein the step of determining the chosen data unit depends on credit of the ready network connection (implicit: see col.8, lines 32-34); and

transmitting the chosen data unit to the output channel (see col.8, lines 21-23: "*transmitted on output ports*").

As per ***claim 32***, which depends on claim 31, Bonomi teaches of further comprising moving the ready network connection from the first list to a second list,

wherein when the first list is empty, moving the ready network connections back to the first list (see col.10, lines 24-33), the method further comprising:

continuing to assign a credit to each ready network connection in the plurality of network connections in the first list in a round robin sequential fashion until the first list is empty, wherein when a ready network connection is assigned credits at least equal to its relative frequency value, removing the ready network connection from the first list (repeating previous steps does not make invention novel: see previously cited reference locations of claim 31).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-8, 11-18, 21-28, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonomi et al. (US 6,396,834 B1) in view of Klausmeier (US 5,561,663 A).

INDEPENDENT:

As per ***claim 1***, Bonomi teaches a method of performing virtual network connection merge, the method comprising:

assigning a relative frequency value to each network connection in a plurality of network connections, wherein a higher relative frequency value is assigned to a network connection requiring a higher relative bandwidth (see col.3, lines 38-40: "*individual connections consistent with the QoS parameters associated with each connection*"; col.10, lines 18-23: "*allocation of bandwidth proportional to the bandwidth with which each connection is setup with*" & "*features such as priorities*"; and col.11, lines 8-18: "*assuming equal priority, bandwidth is distributed proportionate to the desired bandwidth for each connection*");

allocating credits to ready network connections in the plurality of network connections in proportion to relative frequency values of ready network connections of a same virtual network connection merge (see col.12, lines 5-9: *each group is assigned a weight and the cells in the group are allocated an aggregate bandwidth proportional to the assigned weight*"), a ready network connection being a connection ready to send a data unit (see col.11, lines 41-44: "*ready for transmission*" and col.12, lines 19-20: "*ready for transmission*");

assembling one or more data units from data traffic of ready network connections (see col.11, lines 23-32: "*the farther a cell is placed from a current bucket, the later the cell is likely to be transmitted*"; and col.12, lines 19-24: "*The manner in which cells are placed in buckets and transmitted can vary depending on whether a connection is shaped or not shaped*");

determining a chosen data unit to be transmitted to an output channel from a first connection in the ready network connections (see col.9, line 62-col.10, line 1:

"*scheduler 470 to determine the ports on which (cells of) each branch queue needs to be transmitted*" and col.12, lines 19-20: "*a bucket with a cell ready for transmission is selected*"), wherein the step of determining the chosen data unit depends on credit of the first connection (implicit: see col.8, lines 32-34); and

transmitting the chosen data unit to the output channel (see col.8, lines 21-23: "*transmitted on output ports*").

Bonomi does not explicitly teach of adjusting the credit of the first connection based upon the data unit transmitted.

Klausmeier teach of adjusting the credit of the first connection based upon the data unit transmitted (see col.3, lines 44-48).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the teaching of Klausmeier within the system of Bonomi by implementing adjusting the credit of the first connection based upon the data unit transmitted within the method of performing virtual network connection merge because Klausmeier teaches that such means allows for the fair determination of which connection to be served next (see col.4, lines 13-15), otherwise the first connection will be repeatedly served for the same reasoning based on the credit.

As per ***claim 11***, Bonomi teaches of an integrated circuit configured to perform a virtual network connection merge, the integrated circuit comprising:

controller circuitry configured to control operations (see Fig.4) of:

assigning a relative frequency value to each network connections in a plurality of network connections, wherein a higher relative frequency value is assigned to a network connection requiring a higher relative bandwidth (see col.3, lines 38-40: "*individual connections consistent with the QoS parameters associated with each connection*"; col.10, lines 18-23: "*allocation of bandwidth proportional to the bandwidth with which each connection is setup with*" & "*features such as priorities*"; and col.11, lines 8-18: "*assuming equal priority, bandwidth is distributed proportionate to the desired bandwidth for each connection*");

allocating credits to ready network connections in the plurality of network connections in proportion to relative frequency values of ready network connections of a same virtual network connection merge (see col.12, lines 5-9: *each group is assigned a weight and the cells in the group are allocated an aggregate bandwidth proportional to the assigned weight*"), a ready network connection being a network connection ready to send a data unit (see col.11, lines 41-44: "*ready for transmission*" and col.12, lines 19-20: "*ready for transmission*");

assembling one or more data units from data traffic of a ready network connection (see col.11, lines 23-32: "*the farther a cell is placed from a current bucket, the later the cell is likely to be transmitted*"; and col.12, lines 19-24: "*The manner in which cells are placed in buckets and transmitted can vary depending on whether a connection is shaped or not shaped*");

determining a chosen data unit to be transmitted to an output channel from a first connection in the ready network connections (see col.9, line 62-col.10, line 1:

"*scheduler 470 to determine the ports on which (cells of) each branch queue needs to be transmitted*" and col.12, lines 19-20: "*a bucket with a cell ready for transmission is selected*"), wherein the step of determining the chosen data unit depends on credit of the first connection (implicit: see col.8, lines 32-34); and

transmitting the chosen data unit to the output channel (see col.8, lines 21-23: "*transmitted on output ports*").

Bonomi does not explicitly teach of adjusting the credit of the first connection based upon the data unit transmitted.

Klausmeier teach of adjusting the credit of the first connection based upon the data unit transmitted (see col.3, lines 44-48).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the teaching of Klausmeier within the system of Bonomi by implementing adjusting the credit of the first connection based upon the data unit transmitted within the integrated circuit configured to perform a virtual network connection merge because Klausmeier teaches that such means allows for the fair determination of which connection to be served next (see col.4, lines 13-15), otherwise the first connection will be repeatedly served for the same reasoning based on the credit.

As per ***claim 21***, Bonomi teaches a computer-readable medium carrying one or more sequences of one or more instructions for performing a virtual network connection merge, the one or more sequences of one or more instructions including instructions

which, when executed by one or more processors, cause the one or more processors to perform the steps of:

assigning a relative frequency value to each network connection in a plurality of network connections, wherein a higher relative frequency value is assigned to a network connection requiring a higher relative bandwidth (see col.3, lines 38-40: "*individual connections consistent with the QoS parameters associated with each connection*"; col.10, lines 18-23: "*allocation of bandwidth proportional to the bandwidth with which each connection is setup with*" & "*features such as priorities*"; and col.11, lines 8-18: "*assuming equal priority, bandwidth is distributed proportionate to the desired bandwidth for each connection*");

allocating credits to ready network connections in the plurality of network connections in proportion to relative frequency values of ready network connections of a same virtual network connection merge (see col.12, lines 5-9: *each group is assigned a weight and the cells in the group are allocated an aggregate bandwidth proportional to the assigned weight*"), a ready network connection being a network connection ready to send a data unit (see col.11, lines 41-44: "*ready for transmission*" and col.12, lines 19-20: "*ready for transmission*");

assembling at least one data unit from data traffic of a ready network connection (see col.11, lines 23-32: "*the farther a cell is placed from a current bucket, the later the cell is likely to be transmitted*"; and col.12, lines 19-24: "*The manner in which cells are placed in buckets and transmitted can vary depending on whether a connection is shaped or not shaped*");

determining a chosen data unit to be transmitted to an output channel from a first connection in the ready network connections (see col.9, line 62-col.10, line 1: "*scheduler 470 to determine the ports on which (cells of) each branch queue needs to be transmitted*" and col.12, lines 19-20: "*a bucket with a cell ready for transmission is selected*"), wherein the step of determining the chosen data unit depends on credit of the first connection (implicit: see col.8, lines 32-34); and

transmitting the chosen data unit to the output channel (see col.8, lines 21-23: "*transmitted on output ports*").

Bonomi does not explicitly teach of adjusting the credit of the first connection based upon the data unit transmitted.

Klausmeier teach of adjusting the credit of the first connection based upon the data unit transmitted (see col.3, lines 44-48).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the teaching of Klausmeier within the system of Bonomi by implementing adjusting the credit of the first connection based upon the data unit transmitted within instructions for performing a virtual network connection merge because Klausmeier teaches that such means allows for the fair determination of which connection to be served next (see col.4, lines 13-15), otherwise the first connection will be repeatedly served for the same reasoning based on the credit.

DEPENDENT:

As per ***claims 2, 12, and 22***, which respectfully depend on claims 1, 11, and 21, Bonomi further teaches wherein the step of assembling at least one data unit comprises:

allocating the data traffic of the at least one data unit into memory cells (see col.4, lines 6-9); and

adding the memory cells to cell descriptor (CD) lists until an end of frame (EOF) cell is received, wherein the end of frame cell is used to identify unit boundaries (see abstract: "Sequence of cells forming a frame are buffered in the ATM switch until the end of frame cell is received").

As per ***claims 3, 13, and 23***, which respectfully depend on claims 1, 11, and 21, Bonomi teaches of further comprising calculating a higher credit for network connection that have data unit ready for transmission (see col.12, lines 66-67), wherein a ready data unit is a whole data unit with memory cells filled with data traffic (inherent).

As per ***claims 4, 14, and 24***, which respectfully depend on claims 2, 12, and 22, Bonomi further teaches wherein the step of transmitting the chosen data unit comprises:

allocating merge bandwidth for the chosen data unit (see col.12, lines 33-37);

adding memory cells of the chosen data unit to transmit lists (see col.10, lines 26-31 and col.15, lines 52-54); and

transmitting the memory cells of the chosen data unit to the output channel based on information in the transmit lists (see col.10, lines 26-31 and col.15, lines 54-61), wherein the memory cells of the chosen data unit are transmitted until an end of frame cell of the chosen data unit is transmitted (see col.13, lines 1-4).

As per ***claims 5, 15, and 25***, which respectfully depend on claims 1, 11, and 21, Bonomi teaches of further comprising: determining another chosen data unit to be transmitted the output channel (see col.13, lines 1-4); and transmitting the other chosen data unit to the output channel (see col.13, lines 12-21).

As per ***claims 6, 16, and 26***, which respectfully depend on claims 5, 15, and 25, Bonomi teaches of further comprising performing steps of the method until all data units from ready network connections with sufficient credit have been transmitted (inherent).

As per ***claims 7, 17, and 27***, which respectfully depend on claims 1, 11, and 21, Bonomi further teaches wherein the ready network connection includes Asynchronous Transfer Mode (ATM) connections (see col.1, lines 16-20).

As per ***claims 8, 18, and 28***, which respectfully depend on claims 1, 11, and 21, Bonomi teaches of further comprising:

assigning a bandwidth guarantee to each network connection (see col.10, lines 7-9 and col.12, lines 7-18);

receiving an overload traffic from a network connection having a relatively low bandwidth guarantee (implicit: see col.4, lines 6-15); and

storing the overload of traffic into at least one stored data unit (see col.10, lines 34-36).

As per ***claims 33-35***, which respectfully depend on claims 1, 11, and 21, Bonomi further teaches wherein allocating credits to each network connection comprises:

assigning a credit to each ready network connection in the plurality of network connections in a list (see col.12, lines 5-9);

when a ready network connection is assigned credits equal to its relative frequency value, removing the ready network connection from the list (see col.10, lines 15-18); and

continuing to assign a credit to each ready network connections in the plurality of network connections in the first list until the list is empty, wherein when a ready network connection is assigned credits equal to its relative frequency value, the ready network connection is removed from the first list (repeating previous steps does not make invention novel: see previously cited reference locations).

7. Claims 10, 20, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonomi et al. (US 6,396,834 B1) and Klausmeier (US 5,561,663 A), further in view of Radhakrishanan et al. (US 6,049,526 A).

As per ***claims 10, 20, and 30***, which respectfully depend on claims 1, 11, and 21, Demizu and Klausmeier do not explicitly teach wherein the determining step comprises: generating a particular bandwidth shape token for the virtual network connection merge; and receiving a bandwidth shape token configured to assist in identifying the chosen data unit.

Radhakrishanan teach of generating a particular bandwidth shape token for the virtual network connection merge (see col.6, lines 39-41); and receiving a bandwidth shape token configured to assist in identifying the chosen data unit (see col.9, lines 45-60).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the teachings of Radhakrishanan within the system of Demizu and Klausmeier by implementing generating a particular bandwidth shape token and receiving such for assisting in identifying the chosen data unit within the method of performing virtual network connection merge by a program or integrated circuit because Radhakrishanan teaches that such an implementation is employed to guarantee scheduling of different VC (virtual channel) cells (of different rates) and also "avoids and/or reduces cell clumping buffer overflows".

Response to Arguments

8. Applicant's arguments with respect to claim 1-8, 10-18, 20-28, and 30-35 have been considered but are moot in view of the new ground(s) of rejection.

Per the amendment, the newly cited reference *Klausmeier* further teaches the missing limitations of the independent claims 1, 11, and 21.

In response to the argument regarding prior art, *Bonomi* clearly teaches the broad limitations of the claimed invention (see rejections above). *Klausmeier* teaches the missing element, namely "adjusting the credit of the first connection based upon the data unit transmitted".

Based on the rejection and the response to arguments set forth above, claims 1-8, 10-18, 20-28 and 30-35 remain rejected and pending.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Y. Won whose telephone number is 571-272-3993. The examiner can normally be reached on M-Th: 7AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Won

Bharat Barot

BHARAT BAROT
PRIMARY EXAMINER

July 11, 2006